A newsletter of the
LTAP
Issue Number 57, Winter 1998

Bulletin

Positive Guidance for Older Motorists

By George Crommes, PE

Editor's Note: I was reading a report from the Texas Transportation Institute the other day. It brought to light the importance of attending to those conditions on our roads and streets that need extra care for our older drivers.

By 2010, it has been predicted that one-half of the USA population will be 55 years of age or older. Studies have also been made of the over-representation of the older drivers in auto accidents and fatalities. Errors that are common to this group of drivers are:

- Failure to yield right of way.
- Failure to obey signs, signals, and markings.
- Improper turns.

The root cause of these errors is multifaceted. As we age, we have reduced perception and reaction times, our eyesight is poorer regardless of corrective lenses, and performance as drivers may be less than when we were young.

All drivers, including the elderly, could benefit from awareness by public works people of "positive guidance" and corrections of those features that violate these common-sense principles. From the Texas report, the following are important:

Positive Guidance and Older Motorist Applications

1. **Design for … Motorists!** Motorists are the "users" of the roadway, not traffic engineers or the transportation industry. Motorists don't understand technical concepts relating to design, operations, or motorist information. Some motorists are very well educated, some are not literate, at least not in the English language. They are intent on simply getting from point A to point B, and the technical aspects of the facility should be "transparent" to them, while still providing them what they **need** to know.
2. **Accommodate Target Groups.** There are certain types of motorists that may need special design consideration, more in some locales than in others. Older motorists are a special focus, but there are other special groups, such as truckers in hilly country or the tourist in rush hour.

Continued on page 2

T2

The Northwest Technology Transfer Center
TransAid-WSDOT

Contents

Continued from page 1

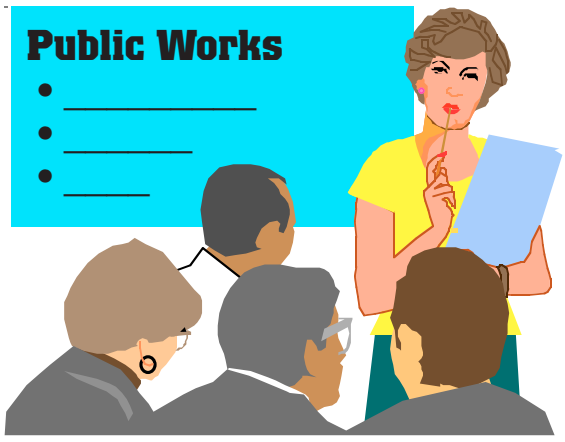
3. **Take into Account Motorist Task Demands and Motorist Abilities.** Roadway information should consider how heavy the motorists' attentional demand may be, and how well a motorist can meet those demands. Motorist information needs are certainly different on a crowded freeway at rush hour like I-10 in Houston than on I-10 near Flatonia, Texas at any time of the day or night. (Flatonia is an isolated small town halfway between Houston and San Antonio.) Anticipation of information needs is critical.
4. **Satisfy *All* Information Needs.** Speed and path information should always be available. Routes, services, and hazards should be displayed when appropriate, all in a form suitable for the motorists and the current driving situation. Fulfilling this principle can be a very tall order. Often in an attempt to provide **all** the information, overload, frustration, confusion, and even an accident may result. The key is the **right** information at the **right** time.
5. **Maintain Compatibility Between Roadway and Information.** The information in the context of the roadway where it is installed should be reviewed either by mock-up or computer simulation to make sure they are consistent with each other. This is another principle that is often hard to meet. Sometimes, for example, directional guide sign arrows can be confusing and not reflect actual geometrics at an intersection. No wonder we are confused as motorists!
6. **Avoid Surprises and Expectancy Violations.** When motorists are suddenly confronted with unexpected features, hazards, or choice points without previous advanced information nasty things can and do happen. A well-designed information system should be predictable, even boring, to free the motorist from too much information at critical times.
7. **Eliminate Information Error Sources.** Common examples of information error sources are missing information, traffic control devices that are inoperative, defective, or defaced, and devices hidden by plants, snow, or construction debris. Other error sources include the placement of a device or marking too close to the hazard or choice point and obsolete or nonstandard devices.
8. **Provide a Steady Flow of Needed Information.** As the motorist proceeds he should get just what he needs to know, neither more and certainly not less. The information must be "spaced out" to permit him to process it at a pace compatible with other tasks. Peaks (overload) and troughs (not enough information where motorist starts guessing) should be avoided.
9. **Where Information Needs Compete, Use Priorities.** Priority is determined by what performance level is being given information, and by degree of hazard if the information is not provided. Control is always highest priority, guidance next and navigation the lowest of all. Like some of the other principles, it can be difficult to satisfy this principle for all motorists.

(Reference: "Positive Guidance and Older Motorists-Guidelines for Maintenance Supervisors," Texas Transportation Institute, 1996.)

Up and Running

Associate of Technical Arts in Public Works

The community college system has started an Associate of Technical Arts in Public Works (ATAPW) degree program and it is now available at South Puget Sound Community College and Bates Technical College. Various career paths are available. Students can get a curriculum of courses from SPSCC, or refer to their latest catalog. Basic courses can be taken at any community college, but final course work must occur at SPSCC. Contact Jim Nichols, P.E., the program coordinator at (360) 754-7711 ext. 590.



AutoCAD Symbol Library Update Request

The Washington Chapter of APWA developed an AutoCAD symbol library in the late 1980s and has been distributing it as freeware. The symbols are used by many agencies worldwide on engineering drawings to depict engineering features. Autodesk, the company that manufactures AutoCAD, continues to improve their product with periodic upgrades. The APWA menu system, which aids in use of the symbols, has been updated to run in AutoCAD Release 12. AutoCAD Release 14 is the current Autodesk product. The menu and LISP routines need to be updated to run in AutoCAD Release 14.

Have you (or do you know of anyone who has) updated the AutoCAD Symbol Library to operate in AutoCAD Release 14? If you have and would like to share your files with the other users please contact:

Ed Lagergren, P.E.
Washington State Department of Transportation
P.O. Box 47344
Olympia, WA 98504-7344
Phone: 360-705-7986
Fax: 360-705-6826
E-mail: lagerge@wsdot.wa.gov

1998 International Utility Suppliers Exposition

Portland Metropolitan Exposition Center

October 8-9, 1998

Contact: Russell Dubbels
P.O. Box 1520
Wilsonville, OR 97070

(503) 570-8637

Director's Column

Our plans for 1998 will continue to emphasize satisfying your needs for training, technical materials, and advice. If you have a particular subject that you would like to contribute to this newsletter, please contact me and we can discuss it. At times, its difficult to define those areas that you would like to know more about if we don't hear from you.

A recent study by the U.S. Department of Health, Education, and Welfare reported something that most of us already know, but bears repeating here. Learners retain 10 percent of what they read, 20 percent of what they hear, 30 percent of what they see, 50 percent of what they see and hear, 70 percent of what they say, and 90 percent of what they say and do.

And finally, I found this gem of a quote by Mark Twain, which I thought may inspire those who have higher goals for their careers.

"Keep away from people who try to belittle your ambitions. Small people always do that, but the really great make you feel that you too, can somehow become great"…Mark Twain

In-house Policies for Reducing Tort Liability

In a time of increasing insurance premiums and lawsuits, local agencies need to know how to protect themselves from tort liability. The following are useful tips for reducing tort liability:

1 ***Define the duties, responsibilities, and authority of staff.***

2 ***Understand and perform duties satisfactorily.***

3 ***Use competent professionals in decision making, design, construction, maintenance, and operation.***

4 ***Maintain adequate records.*** Establish adequate record systems to provide facts about existing conditions. These systems should include: (a) traffic accident records and procedures for identifying high-accident locations; and (b) inventories of current information about the physical features and conditions of existing transportation facilities and traffic control devices (photos, videos, and other media are useful).

5 ***Provide an inspection system.*** Establish and maintain a system of regular inspections, which should include the physical conditions of facilities and traffic control devices.

6 ***Establish a system for responding to complaints.*** Develop and maintain a procedure for handling complaints and reports. Effective handling of complaints yields legal benefits and provides good public relations.

7 ***Keep good maintenance records.*** Complete and current maintenance records can provide information about the nature of a repair, including a description of the problem, the repairs made, and the materials used.

8 ***Use current design criteria.*** Make sure the designs of facilities or traffic control devices are consistent with currently adopted policies, guidelines, standards, and manual specifications.

9 ***Develop standards of performance.*** Adopt standards of performance in the areas of design, construction, operations, and maintenance.

10 ***Develop written agency policies.*** Without a written policy for road inspection to identify problems and set priorities to correct them, agency officials cannot adequately manage their jurisdiction's roadways. A written road policy is a necessity, because it serves as the binding link of communication between all responsible parties.

11 ***Avoid false economies.*** Foolishly cutting necessary expenditures in order to appear fiscally responsible to the community's taxpayers inevitably leads to careless and negligent work.

12 ***Have adequate insurance.*** Carry adequate liability insurance. This sometimes translates to "carry as much as you can afford."

13 ***Get good advice.*** Contact the agency's legal counsel for advice about the increasing threats of tort liability to local governments. Become conscious of potential claims.

(Adapted from "Protect Your Community From Tort Liability Suits," Vermont Local Roads Program, St. Michael's College.)

Metallized Steel Bridge Coatings

Metallizing is a common term used to describe thermal sprayed metal coatings. This technology encompasses various techniques and materials, and has wide ranging applications. For corrosion control coatings on steel structures, metallizing refers to the thermal spraying of zinc or aluminum alloys as a coating directly onto steel surfaces. The coatings are created by using a heat source (either flame or electric-arc) to melt the metal which is supplied as a wire or in powder form. An airstream sprays the molten metal onto the steel surface in a thin film. Once the metal strikes the steel it resolidifies quickly to become a solid coating.

Metallized coatings provide corrosion protection to steel by sacrificial and barrier protection. The coating itself provides a barrier between the environment and the steel surface, especially when applied in combination with conventional sealer coatings (epoxies, polyurethanes, acrylics, etc.) as topcoats. Due to the electrochemical reaction between steel and zinc or aluminum in an aqueous and salt-contaminated environment, these coatings tend to "sacrifice" themselves to protect the steel at the site of any damage or holidays in the coating. This sacrificial protection is akin to the protection provided by zinc-rich primers or galvanizing.

Application Process: Metallized coatings may be applied in the shop or in the field using a variety of techniques and equipment. The metal or metal alloy is supplied in wire or powder form and is fed through a heat source and liquefied. The heat source may be either flame (i.e., oxygen-acetylene) or electric arc. The liquid metal is immediately propelled onto the prepared steel surface using air spray (similar to painting). Once on the surface, the liquid metal cools and drys very quickly to form a continuous protective coating over the steel surface. This application process has traditionally been measurably slower than paint application by air or airless spray equipment; however, recent improvements in electric arc metallizing equipment have dramatically increased metallizing production rates. Recent reports have measured metallizing application rates similar to conventional air spray paint application rates with this new equipment.

Cost Impact: Recent cost estimates place metallizing as two to three times the cost of conventional painting on a square foot basis. Other recent bids and estimates have shown metallizing to be somewhat more competitive, particularly when performed in the fabrication shop with newer high-productivity electric arc equipment. Information regarding the cost of metallizing is highly variable due to the low volume of work currently performed by bridge fabricators and rework contractors. Most steel fabrication shops around the country are not mobilized for high volume application of metallized coatings. Higher volume specification and use would likely make the price of metallizing more competitive with conventional paint application on a square foot basis.

In spite of current cost factors, metallizing may provide significant life-cycle cost savings in bridge applications, particularly for bridge structures or components located in corrosion-prone areas. The primary benefit of metallizing over other coating technologies is its durability and corrosion resistance in salt-rich environments. For this reason, the application of metallizing should be considered as an option for bridge structures in salt-rich environments or for areas or components of bridge structures which receive considerable exposure to salt and moisture from drainage and runoff. To-date the cost differences between application of metallizing and conventional painting options have been significant in most cases. For this reason, metallizing should be specified based on the results of life-cycle cost analyses of coating options on a case-by-case basis.

Performance Experience: Due to the higher initial cost of metallized coatings, long term, maintenance free performance is necessary for consideration of metallizing as a corrosion control option for bridges. When applied properly, these coatings have shown excellent long term performance when compared to more conventional paint systems, especially in more severe coastal and salt-rich environments.

Recent and ongoing FHWA-sponsored test programs have found that metallized coating systems have performed very well, when applied over blast-cleaned steel (i.e., SSPC SP-10 or SP-5). These coatings have a dull gray appearance with a roughened texture as-applied, but may be sealed and topcoated with most conventional paints (except alkyds and chlorinated rubbers). Sealing is recommended by most existing guidelines as it tends to increase coating lifetime, reduce the deleterious effects of

Continued on page 6

Continued from page 5

metallized coating porosity, and improve aesthetics. Sealers of various generic types exist and are compatible with a metallized substrate. It is important to use a sealer of sufficiently low viscosity to penetrate and fill any porosity in the metallized coating.

Metallized coatings provide the benefit of defect tolerance. The sacrificial nature of these coatings provides protection to the surrounding steel at the site of unintensional breeches in the coating film. Metallized coatings (particularly aluminum and aluminum alloys) also tend to be quite abrasion resistant.

Critical Application Parameters: Several application details for metallized coatings have proven to be critical to the success of these materials:

- Surface Profile and Anchor Pattern — the bond between the metallized coating and the steel surface is mechanical in nature. In addition, the adhesion of metallized coatings is sensitive to contamination. Surface preparation should be specified as SSPC SP-10, near-white (minimum) with a 2-4 mil anchor tooth profile. Conventional peening with rounded shot has produced poor adhesion.
- Consistent and Uniform Application — metallizing is a "solventless" coating application method and as such is somewhat less forgiving than conventional paint application. Applicators should be properly trained and experienced with the specific equipment and metals or alloys to be used.
- Film Build — because metallized coatings are inherently porous, achieving an adequate build (6-8 mils minimum) in an overlapping spray pattern is critical to coating life.

Summary of Supporting Data: In an FHWA sponsored study zinc and 85 percent zinc/15 percent aluminum alloy (applied at 6 mils over an SP-10 near-white blasted surface) were the best performing coating systems of over 40 coating systems tested. These coatings were exposed for seven years at a harsh marine exposure test site, both sealed and unsealed. The metallized panels showed virtually no corrosion and no cutback from intentional coating defects after this exposure.

The Ohio Department of Transportation has applied 85 percent zinc/15 percent aluminum alloy to approximately ten bridges over the past eight years with no reported failures. These bridges have 8 mils of metal by specification and are sealed with a clear phenolic topcoat. Ohio has developed a detailed specification for application of metallized coatings and has recently mandated metallizing in all expansion joint areas for new construction.

A recent feasibility study performed by the Oregon Department of Transportation showed life cycle cost competitiveness between zinc-rich 3-coat paint systems and metallizing. These conclusions were based in part on performance experience of metallized coatings in Europe and Canada and on the recent costs of metallizing jobs in Ohio, Oregon, and other states.

The American Welding Society and the U.S. Navy have performed extensive testing of metallized coatings applied to steel. These studies show that properly applied metallized coatings (zinc, 85 percent Zinc/15 percent Aluminum, and Aluminum) of at least 6 mils thickness provide at least 20 years of maintenance free corrosion protection in wet, salt-rich environments and are expected to provide 30 years of protection in most bridge exposure environments. A study performed on the Thomas Mathis Bridge by New Jersey DOT shows perfect performance of two metallized bridge spans after eight years of marine exposure.

One each of these spans received metallized zinc and 85 percent zinc/15 percent aluminum with epoxy and polyurethane topcoats. Other spans painted with different conventional coatings showed varying performance. Some of the zinc-rich coatings performed quite well, but the two metallized spans were the only ones showing absolutely no deterioration over the test period. Recommendation: The test results and field experiences detailed above demonstrate the merits of metallized coatings systems for corrosion protection of steel bridge components, particularly in severely corrosive environments. Metallized coatings should be considered as a durable corrosion control option for new steel during shop fabrication of bridge components for a harsh exposure environment. Metallizing technology may also be applicable to field maintenance coating operations where a long-term, durable corrosion protection coating is required. Application of metallized coatings in the shop, and, particularly in the field requires a technically sound specification with trained applicators and inspectors.

(Source: USDOT, FHWA Turner Fairbanks Highway Research Center, January 1, 1997. Home page http://www.thfhrc.gov/)

Some Useful Internet Sites

Out T2 home page links with numerous "other T2 resources" that relate to transportation. Our home page address is defined on the back cover of this newsletter. Some additional sites of interest follows. Try them out and judge for yourself their value to your work.

Targeted Communication Management

(www.tcm.com)

Links to all kinds of people, places, things, and services to do with training.

Training Supersite

(www.trainingsupersite.com)

This site is another training and development site with links to Training magazine, job listings, research, items for purchase and much more.

USDLA

(www.usdla.org)

Home page of the United States Distance Learning Association contains membership information, along with lots of distance learning information and research.

Washington State Bill Information

(http://leginfo.leg.wa.gov/www/bills.htm)

Applied Ethics in Professional Practice

(http://www.engr.washington.edu/~uw-epp/Pepl/Ethics/index.html)

Home Page Washington State

(http://www.wa.gov/)

Western ITE, District 6

(http://www.westernite.com/)

National Cooperative Highway Research Program

(http://www2.nas.edu/trbcrp/nchrp1.html)

Self-Paced Training Courses Available

The Washington State Department of Personnel, through it's Personnel Employee Development and Training Office, provides several self-paced training courses. These self-paced courses do not require you to be away from your work for several days in order to obtain the training. The courses are available to state merit system agency employees as well as employees of local agencies. Two self-paced courses are as follows:

Supervisory Challenge Correspondence Course

This course provides you with a comprehensive foundation in basic supervisory principles and techniques and a valuable background for further management studies. Although not intended as a substitute for "live," interacting training, this course is available to you anywhere, anytime, and regardless of your location or work schedule. You should be able to complete this self-paced in about 30 hours. The cost is $10 for each Supervisory Challenge text.

Internet-Based Writing For Results

This "Internet-Based Writing for Results" class will teach you to improve your memos, letters, E-mail, and reports. When you register for this class, you will receive access to a special easy-to-use class website. It contains eight one-hour lessons, each of which has an "Essentials Article," examples, and a homework assignment. Each week, for eight weeks, you simply complete one lesson's homework and send it to the instructor via E-mail. All you need is a PC with access to the Internet and E-mail and the motivation to do the homework. The registration fee for this course is $165 per person.

If you are interested in either of these two self-paced courses, need more information or want to register for either course please contact the ED&TP as follows;

Department of Personnel
ED&TP
600 South Franklin
PO Box 47530
Olympia, WA 98504-7530

Fax: (360) 586-6695
http://www.wa.gov/dop/edtp/pages/contents.htm
Telephone: (360) 586-2262 or 2720

Appraisal Review for FHWA Funded Projects

Due to recent tightening of the enforcement of federal regulations regarding appraisal review, some agencies are finding that they do not have staff who meet the review qualifications in Chapter 25 of the *LAG Manual*. WSDOT Real Estate Services is preparing to offer an examination that will serve to demonstrate the proficiency of agency staff who have gained the necessary expertise to perform the review function.

The examination will be similar to that given to appraisal contractors to qualify them to be on the WSDOT approved list of consultant appraisal reviewers. It will be administered by Real Estate Services free of charge with the location and timing to be determined by the demand. If your agency has anyone wishing to be put on a list of approved agency reviewers please contact Galen Wright at (360) 705-7308 and an examination time and location will be determined and agencies notified.

Free Publications From Your T2 Center

For Washington recipients only.

Name _____

Agency _____

Address _____

City and Zip _____

Phone _____

Check those items you would like to order.

___ Current Application and Successful Implementation of Local Agency Pavement Management in the United States, FHWA, 1997

___ Scrap Tire Utilization Technologies, NAPA

___ State-of-the-Art Survey of Flexible Pavement Crack Sealing Procedures in the United States, CRREL, 1992

___ Maintenance of Aggregate and Earth Roads, NWT2 Center (1994 reprint)

___ International State-of-the-Art Colloquium on Low-Temperature Asphalt Pavement Cracking, CRREL

___ The Engineer's Pothole Repair Guide, CRREL

___ Geotextile Selection and Installation Manual for Rural Unpaved Roads, FHWA

___ Guide to Safety Features for Local Roads and Streets, FHWA, 1992

___ Family Emergency Preparedness Plan, American Red Cross, et al.

___ Getting People Walking: Municipal Strategies to Increase Pedestrian Travel, Rhys Roth, Energy Outreach Center

___ The Superpave System – New Tools for Designing and Building More Durable Asphalt Pavements, FHWA

___ A Guide to the Federal-Aid Highway Emergency Relief Program, USDOT, June 1995

___ Asphalt Seal Coats, T2 WSDOT

___ Pothole Primer — A Public Administrative Guide, CRREL, 1989

___ Redevelopment for Livable Communities, Rhys Roth, Energy Outreach Center

___ Manual of Practice for an Effective Anti-Icing Program, FHWA, 1996

___ A Guidebook for Residential Traffic Management, NWT2 Center, 1994

___ A Guide for Student Pedestrian Safety, KJS, 1996

___ A Guide for Local Agency Pavement Managers, NWT2 Center, 1994

___ Local Agency Pavement Management Application Guide, NWT2 Center, 1997

___ More Than Asphalt, Concrete and Steel, FHWA, 1997

___ Positive Guidance and Older Motorists — Guidelines for Maintenance Supervisors, Texas A&M

___ Planning, Design, and Maintenance of Pedestrian Facilities, FHWA, 1989

Workbooks and Handouts From T² Center Workshops

___ Handbook for Walkable Communities, by Dan Burden and Michael Wallwork
___ Traffic Calming: A Guide to Street Sharing
___ Geosynthetic Design and Construction Guidelines, National Highway Institute
___ Construction of Portland Cement Concrete Pavements, FHWA, 1996
___ Planning and Implementing Pedestrian Facilities in Suburban and Developing Rural Areas, TRB
___ Planning, Design, and Maintenance of Pedestrian Facilities, FHWA, 1989
___ Rockfall Hazard Mitigation Methods, FHWA, 1994

Self-Study Guides

The following noncredit self-study guides are available through WSDOT Staff Development and can be obtained from the T² Center. An invoice will be sent with the books.

___ Technical Mathematics I, $20
___ Technical Mathematics II, $20
___ Contract Plans Reading, $25
___ Basic Surveying, $20

Brief (One- to ten-page) T² Handouts

___ Asphalt Pavement Recycling, Crommes, Montague, 1993
___ Be an Effective Coach
___ Characteristics of Effective Decision Makers, Parlay 1996 (New)
___ Characteristics of a Successful Project Manager, Parlay 1996
___ Effective Communication, Parlay 1996
___ Effective Delegation, Parlay 1996
___ Eleven Tips for Time Management, Parlay 1996
___ First Steps for New Supervisors, Parlay 1996
___ Four Basic Principles of Learning, Parlay 1996
___ Four Reasons to Call a Meeting, Parlay 1996
___ Four Sources of Everyday Training, Parlay 1996
___ Get to Know Your Employees, Parlay 1996
___ Hearing Complaints, Parlay 1996
___ How to Listen to Your Employees, Parlay 1996
___ In-House Policies for Reducing Tort Liability
___ Managing Your Work Environment, Parlay 1996
___ Mitigating Road Hazards, Crommes, 1997, (Revised)
___ Operating Tips-Flagging (Updated)
___ Planning is Important, Parlay 1996
___ Proven Stress Busters, Parlay 1996
___ Supervising Older Workers, Parlay 1996
___ 10 Ways to be Better Organized for Your Boss, Parlay 1996
___ The Four Ds of Paperwork, Parlay 1996
___ Tips for Reducing Tort Liability (articles from various sources), 1992
___ To Counsel or to Coach
___ Using a Gantt Chart, Parlay 1996
___ Using a PERT Diagram, Parlay 1996
___ Value Engineering, Crommes
___ Working With Your Boss, Parlay 1996

Orders may be faxed, mailed, or phoned to Laurel Gray
Phone: (360) 705-7386,
Fax: (360) 705-6858
Mailing Address: NWT² Center, WSDOT/TransAid, P.O. Box 47390, Olympia, WA 98504-7390

The Washington Alliance of Sign/Striping Personnel (WASP)

George Crommes, P.E.

I recently asked Wil Brannon of Pierce County to provide some information on an organization to which he has contributed greatly. What follows is a recap of Wil's information on WASP.

The organization (WASP) was formed in 1992 for three basic reasons. (1) to provide a means for the exchange of ideas and knowledge, (2) to provide a forum for members to keep up to date on the latest technical developments, and (3) to meet periodically as a group to discuss subjects of a general or specific interest regarding traffic striping, signage, or general traffic control issues.

Spreading through word of mouth and starting with four counties, the group has grown to include 132 representatives. Included are people from the state's General Services Administration, WSDOT, 25 cities, and 18 counties. As a spin-off of the Western Washington Association of County Road Supervisors (WWACRS), WASP members have expanded their activities in recent years with not only meetings but also an annual conference.

Wil noted that plans for the future include:

1. Continued growth statewide.
2. Targeted four meetings per year (two eastside and two westside).
3. Coordinated meetings where possible with WSDOT.
4. An annual conference with representatives and vendor displays.

If you are interested in attending a future meeting or conference contact one of the following persons:

Wil Brannon, Pierce County (253) 531-6990
Jack Guadette, Kitsap County (360) 876-7061
Bob Tarkelson, WSDOT (509) 663-9606

Walkable Communities: Designing for Pedestrians

Videotape of the class by Dan Burden. Four tapes, 5.5 hours. Available for purchase ($75) or can be borrowed by local agencies. Call T^2 Center for further information (360) 705-7386 or grayl@wsdot.wa.gov.

Opportunities to Enhance Your Skills

For more information, contact the training provider listed. For additional training needs contact the Northwest T^2 Center at (360) 705-7477 or 1-800-973-4496.

Workshops

NWT^2 Center, WSDOT
(360) 705-7386, Fax (360) 705-6858
http://www.wsdot.wa.gov/TA/T2/train.htm

Check out our web pages for the most current and up-to-date training information. Classes are added weekly and is the most current source of information through the T^2 Center.

T^2 Roadshows

Spring roadshows begin in March. Contact John Easley at (360) 705-7385 if you would like to schedule a training session.

Scheduled Classes

Safety Inspection of In-Service Bridges (BPB). March 16-20 and March 30-April 3, Lacey. This is a two-week class; students should plan on attending both sessions. The class is based on the "Bridge Inspector's Training Manual 90" and will provide extensive training on the safety inspection of a variety of in-service highway bridges. Must have a general understanding of bridges. No fee.

Systematic Development of Informed Consent (BRS). *(or "How to Get Controversial Projects, Programs, Regulations, Bond Issues, and other Legitimate Proposals Implemented")* March 23-27. This class will study the methods, tactics, and strategies of "Implementation Geniuses" — people who are skilled at getting all of their projects approved and implemented. $500.

Plans, Specifications & Estimates (PS&E) (A4J). March 24-25, Spokane. More classes will be developed. Let us know where you would like to have one scheduled. This class covers the preparation of contract plans, specifications, and estimates with instruction based on WSDOT's Plans Preparation Manual. It also includes contract special provision writing with recent requirements for preparing complete, concise, and well-formatted special provisions. No fee.

Coming in April and May

Pavement Condition Rating Classes. Instructor — Paul Sachs. Tacoma and Moses Lake locations.

Tentatively Scheduled National Highway Institute Classes

- **Traffic Management Strategies.** April, Seattle/Tacoma
- **Workzone Safety for Maintenance Operations on Rural Highways.** Seattle
- **Access Management, Location and Design.** Seattle/Tacoma
- **Pedestrian and Bicyclist Safety and Accommodation.** Seattle
- **Historic and Archeological Preservation.** Seattle/Tacoma
- **Traffic Control Software and Signalization.** Olympia/Lacey
- **Human Factors: Principles for Highway, Traffic and Design Engineers.** Seattle
- **Design Construction and Maintenance of Highway, Safety Appurtenances and Features.** Seattle

Self-Study Guides Available

The following noncredit self-study guides are available from WSDOT's Staff Development office and can be obtained from the T^2 Center. An invoice will be sent with books.

- Technical Mathematics I - $20
- Technical Mathematics II - $20
- Contract Plans Reading - $25
- Basic Surveying - $20

WSDOT Environmental Affairs Office
Contact Jim Sundahl at (360) 705-7483
http://www.wsdot.wa.gov/eesc/environmental/Training.htm

Certification in Construction Site Erosion and Sediment Control (BPW). March 12-13, Wenatchee; March 16-17, Spokane; April 2-3, Tacoma; April 23-24, Snohomish Co. Class will present procedures for the implementation of Temporary Erosion and Sediment Control Plans (TESCP) and the Contractor's Addendum to the TESCP. Practical examples, WSDOT case studies, and hands-on field work will be utilized to stress the proper installation, maintenance, inspection, and removal of temporary erosion and sediment control Best Management Practices (BMPs). $100.

Continued on page 13

Continued from page 12

WSDOT, Staff Development Training Opportunities
(360) 705-7386, Fax (360) 705-6858

Advanced Relocation Workshop (BSW). March 31-April 2, Vancouver. Class covers comparability, mortgage interest differential payments, last resort housing, multiple use, tenants, farms, and nonresidential moves. Gain understanding of principles underlying provisions of the Uniform Relocation Act and implementing regulations. $160.

National Transit Institute (NTI)
(732) 932-1700, ext. 19
Contact Susan Greenstone
http://policy.rutgers.edu/nti/PROG2.htm

NTI provides free training for public employees in the areas of federal program responsibilities in cooperation with the Federal Transit Administration (FTA). NTI provides training throughout the country in the following areas: Federal Training Program, Multimodal Transportation Planning, Management Development, Professional Development Curriculum for Transit Trainers and Educators, and Advanced Technologies and Innovative Practices.

Washington Environmental Training Center
(253) 833-9111, Ext. 3369

Asbestos/Cement Pipe Work. April 17 and June 5, Auburn. $135.

Confined Space Entry. March 6 and June 5, Auburn. $135.

University of Washington Professional Engineering Practice Liaison (PEPL)
(206) 543-5539, Fax (206) 543-2352
http://www.engr.washington.edu/~uw-epp/Epp/upsc.html

Risk Allocation in Design/Build and General Contractor/Construction Manager Projects. March 24. $195 (early registration), $220.

Biofiltration for Stormwater Runoff Quality. March 25-26. $345 (early registration), $375.

Designing and Implementing Stream Habitat Modification for Salmon and Trout. April 14-16. $485 (early registration), $520.

Infiltration Facilities for Stormwater Quality. June 10-11. $345 (early registration), $375.

TRANSPEED, University of Washington
Call Julie Smith
(206) 543-5539, Fax (206) 543-2352
http://www.engr.washington.edu/~uw-epp/Transpeed/index.html

Prices shown are for city, county, WSDOT, and FHWA personnel. Contact UW for more details.

Inspection of Existing Culverts. March 16-17, Seattle; March 18-19, Spokane. $150.

Legal Liability for Transportation Professionals. March 25-26, Spokane. $150.

Rehabilitation of Pavements. April 1-3, Vancouver. $150.

Introduction to Managing Construction Schedules. April 9-10, Seattle. $150.

GIS Applications in Transportation. April 21-23, Seattle. $180.

Advanced Roadway Geometric Design. April 29-May 1, Seattle. $180.

Applied Highway Economic Analysis. May 7-8, Spokane. $150.

Traffic Engineering Fundamentals, Module 1. May 6-7, Lacey. $150.

Traffic Calming: Techniques and Management. May 11-12, Seattle. $150.

American Society of Civil Engineers
1-800-548-2723
http://www.asce.org/confconted/conted.html

The ASCE offers a number of seminars on such subjects as construction, geotechnical, transportation, management, environmental, structural, and hydraulics and water resources. CEUs can be earned by attending. Various seminars are held in Seattle and Portland. The ASCE also offers self-study videotapes, audiotapes, and software some of which earn CEU credits.

Washington State University Conferences and Institutes
1-800-942-4978
http://www.eus.wsu.edu/c&i/

Distance Education: Designing for Success. May 27-29, Bellevue.

American Traffic Safety Services Association (ATSSA)
(540) 898-5449, Fax (540) 898-6754
http://www.atssa.com/

ATSSA provides training throughout the country in the following areas:

- Worksite Traffic Supervisors
- Pavement Marking Technicians
- Traffic Control in Urban and Utility Work Areas

Continued on page 14

Continued from page 13

- Construction Zone Safety Inspection
- Pavement Marking Inspection
- Flagger Certification

Contact the ATSSA website noted above for course information and scheduling.

American Public Works Association (APWA)
(816) 472-6100, ext. 3534
Contact Shirley Calandra
http://www.pubworks.org/Edu.html

APWA provides satellite video conferences where large audiences share concrete ideas and practical information. March 18, Streetscape in Urban and Rural Environments; April 15, Effective Disaster Recovery Techniques; and May 13, Best Management Practices.

Washington State Department of Personnel (DOP)
(360) 586-2720
http://www.wa.gov/dop/edtp/pages/contents.htm

Classes are open to state and local agency personnel based upon spaces available. Some computer classes are available but are too numerous to list. Contact DOP for their latest catalog or obtain this from the Internet at above address. The following is a sampling of courses offered.

Interpersonal Communication-Skills, Basic. March 19-20, Olympia. $90.

First Aid Basic (two days). March 23-24, Olympia.

Entry Management Development Core Program-Phase 1. March 24-27, Yakima.

Sexual Harassment Awareness and Prevention. March 18. $40.

Introduction to Quality. April 13, Olympia. $134.

Starting the Quality Journey. March 17 and April 3, Olympia. $145.

Total Quality Awareness for Executive Managers. March 25 and April 16, Olympia. $169.

Quality Overview for Middle Managers. March 26 and April 22, Olympia. $184.

Time Management. April 13, Olympia. $75.

Manager's Role in Human Resource System. April 29-30, Tacoma. $50.

Basic Principles for a Collaborative Workplace. April 30, Olympia. $50.

Evergreen Safety Council
401 Pontius Avenue North
Seattle, WA 98109 (206) 382-4090
1-800-521-0778
http://www.esc.org/ecourse.html

Accident Investigation/Safety Inspection. March 18, Seattle; April 7, Spokane.

Safety Committee/Safety Meetings. April 6, Spokane.

Personal Protective Equipment/ Materials. April 9, Seattle.

Lift Truck Instructor Certification. April 13-17, Seattle. $795/$865.

Hazardous Materials Awareness. April 16, Seattle. $165/$195.

Practical Workplace Ergonomics. April 29, Seattle.

Computer Programs

The following computer programs may be downloaded from the Internet at *http://www.wsdot.wa.gov/TA/T2/computer.htm*

Design Cost Estimate. A software database program that calculates cost projections based on standard items.

Materials Approval Tracking. A software program designed to track materials data, need, status, and approval of any materials sampling and documentation needed for approval.

HyperCalc. A shareware utility for converting between metric and English units.

Force Account Macros. A series of ready-made Excel spreadsheets and macros to save you time on daily force account calculations and reports, including wage and equipment rates.

APWA CAD Symbol Standards and Menus. A public domain program of standard AutoCAD symbols developed by the Washington Chapter of APWA for use with AutoCAD release 12.

PaveSmart. A software program for implementing a pavement management system based in the WSDOT Pavement Management System.

Microsoft Access Runtime Program. Assists in running the Materials Approval Tracking and Design Cost Estimate Program.

UTEC System. A software program consisting of a main menu designed to provide a record base for identifying street locations within an agency.

Continued on page 15

Continued from page 14

Conferences and Meetings

http://www.wsdot.wa.gov/TA/T2/conf.htm

The Asphalt Conference and Expo. March 22-25, Cobb Galleria Centre, Atlanta, Georgia. For information: (800) 355-1860, Fax (816) 248-1843. Asphalt Conference and Expo, 600 West Morrison Street, Fayette, Missouri 65248.

Vehicle Maintenance Management Conference. March 23-26.

Washington State Association of Counties (WSAC) Eastern District Meeting. April 2-3, Pullman.

APWA Spring Conference. April 7-10, Tacoma Sheraton, Tacoma. (253) 593-7720 for information.

First National Mitigation Banking Conference. April 6-7, J. W. Marriott Hotel, Washington, D.C. For information call (703) 548-5473 or fax (703) 548-6299.

Washington State Association of Counties (WSAC) Western District Meeting. April 16-17, Shilo Inn, Ocean Shores.

1998 North American Snow Conference. April 19-22, Edmonton, Alberta, Canada.

GIS-T '98 — Geographic Information Systems for Transportation Symposium. April 20-22, Snowbird Convention Center, Salt Lake City, Utah. Theme: Integrating the Transportation Business Using GIS.

FAA Northwest Mountain Region Airport Conference. April 23-24, DoubleTree Hotel-81 at Sea-Tac Airport.

National Association of County Engineers (NACE) 1998 Conference. April 26-30, Rapid City, South Dakota.

ASCE Conference on Transportation, Land Use, and Air Quality. May 17-20.

WSAC Annual Conference. June 9-12.

Association of Washington Cities Annual Conference. June 16-19, Tacoma.

1998 ASEE Annual Conference and Exposition. (American Society for Engineering Education) June 28-July 1, Washington State Convention and Trade Center, Seattle. Conference theme: Engineering Education Contributing to U.S. Competitiveness.

ASCE 1998 Geotechnical Earthquake Engineering and Soil Dynamic Conference. August 3-6, Seattle.

1998 International Public Works Congress and Exposition. September 14-17, Las Vegas, Nevada.

Washington State Association of Counties (WSAC) Legislative Conference. November 10-12, Yakima.

Potential Noise and Vibration Impact Assessment Class

The National Transit Institute (NTI) is willing to offer a "Noise and Vibration Impact Assessment" class in the Seattle area if approximately 30 people register for the class. If there is sufficient interest, the class would be held sometime between May and October 1998. This class is 2.5 days in duration. The class objectives are as follows:

- Understand basic concepts of noise and vibration and the requirements of the Federal Transit Administration (FTA);
- Be able to determine when a noise or vibration assessment is required and what level of impact assessment is appropriate;
- Have sufficient knowledge to evaluate qualifications for producing a noise or vibration assessment for a transit project;
- Understand the procedures and major analytical steps of reviewing the noise or vibration report of a transit project.

Who Should Attend?

- Users of the new FTA guidance manual;
- Those conducting noise and vibration studies;
- Management personnel of project sponsors who need a fuller understanding of the methods used by consultants in such studies;
- Others in more general fields such as environmental planners and transit project planners from local agencies including transit.

Those interested in attending this class should contact Dale Grenier of WSDOT's Environmental Affairs Office. Please contact Dale by e-mail at dgrenier@wsdot.wa.gov or by phone at (360) 705-7478.

A newsletter of the Local Technical Assistance Program (LTAP)

Issue Number 57, Winter 1998

Bulletin

The Technology Transfer Center (T^2) Program is a nationwide effort financed jointly by the Federal Highway Administration (FHWA) and individual state departments of transportation. Its purpose is to translate into understandable terms the latest state-of-the-art technologies in the areas of roads, bridges, and public transportation to local highway and transportation personnel.

Any opinions, findings, conclusions, or recommendations presented in this newsletter are those of the authors and do not necessarily reflect the views of WSDOT or FHWA. All references to proprietary items in this publication are not endorsements of any company or product.

Washington State Department of Transportation
TransAid Service Center

U. S. Department of Transportation
Federal Highway Administration

Northwest Technology Transfer Center
WSDOT-TransAid Service Center
P.O. Box 47390
Olympia, WA 98504-7390

Address Correction Requested